PROJECT

Indian institute of information technology Manipur

Aim:- To display roll no. on seven segment display

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Roll no. :-20010121
Branch:- CSE

Materials Required:-

1. Breadboard
2. Connecting wires
3. Gates:- AND, NOT, OR
4. Seven-segment
5. Power Supply(5v)
6. 74LS190D(IC)
7. LED, HDR
8. Key-Space

PROCEDURE: -

- State the problem
- Identify the number of inputs and outputs then assign the different variables for inputs and outputs

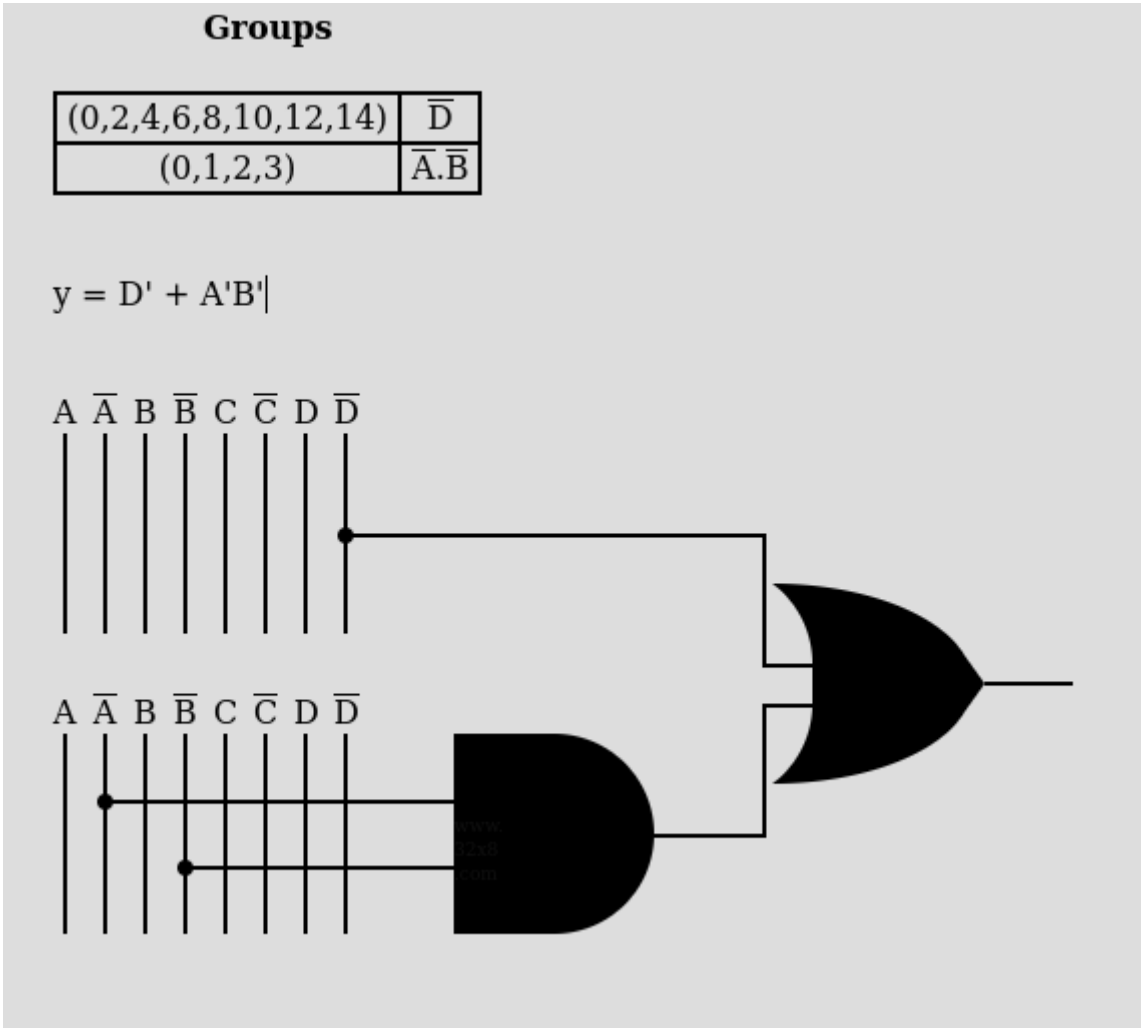
- Construct the truth table which indicates the Relationship between inputs and outputs
- Obtain the simplified output logic Expressions using K-map
- Design the simplified output logic Expression only using 2 inputs of AND gate, OR gate and also using one input and one output gate NOT gate, then build the logic circuits for the above Expressions using suitable IC’s and Seven-Segment
- Apply the various combination of inputs according to the truth table and observe the condition of output

TRUTH TABLE:-

					a	b	c	d	e	f	g
0	0	0	0	C	1	0	0	1	1	1	0
0	0	0	1	S	1	0	1	1	0	1	1
0	0	1	0	2	1	1	0	1	1	0	1
0	0	1	1	0	1	1	1	1	1	1	0
0	1	0	0	0	1	1	1	1	1	1	0
0	1	0	1	1	0	1	1	0	0	0	0
0	1	1	0	0	1	1	1	1	1	1	0
0	1	1	1	1	0	1	1	0	0	0	0
1	0	0	0	2	1	1	0	1	1	0	1
1	0	0	1	1	0	1	1	0	0	0	0

K-map for a: -

AB\ CD	00	01	11	10
00	**1**	**1**	**1**	**1**
01	**1**	**0**	**0**	**1**
11	**X**	**X**	**X**	**X**
10	**1**	**0**	**X**	**X**



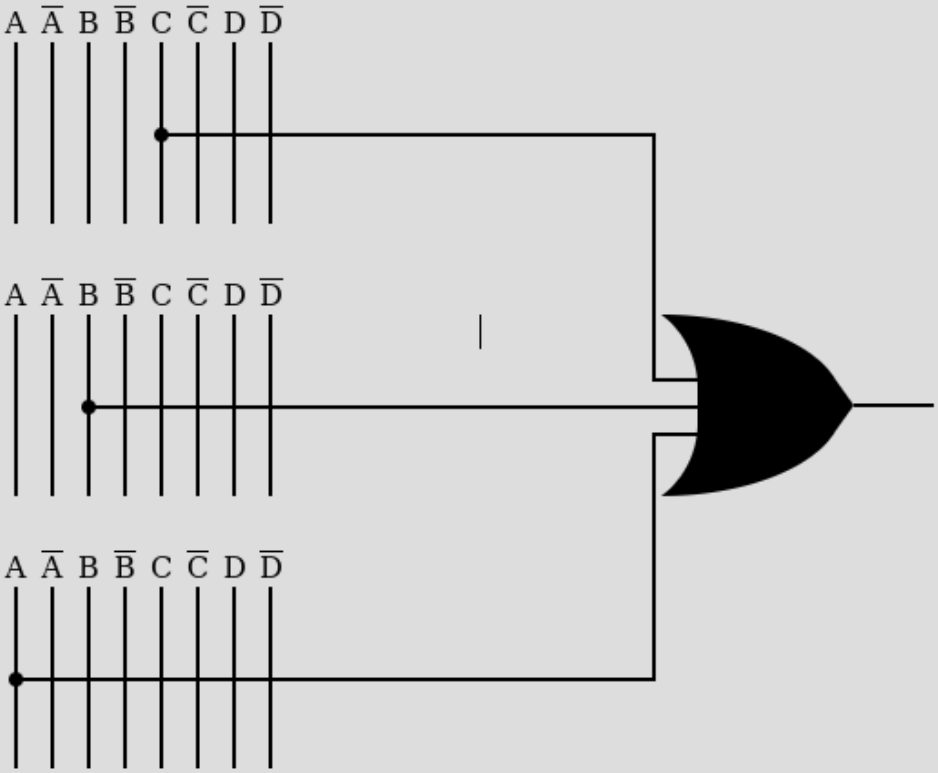
K-map for b: -

AB\ CD	00	01	11	10
00	**0**	**0**	**1**	**1**
01	**1**	**1**	**1**	**1**
11	**X**	**X**	**X**	**X**
10	**1**	**1**	**X**	**X**

Groups

(2,3,6,7,10,11,14,15)	C
(4,5,6,7,12,13,14,15)	B
(8,9,10,11,12,13,14,15)	A

y = C + B + A



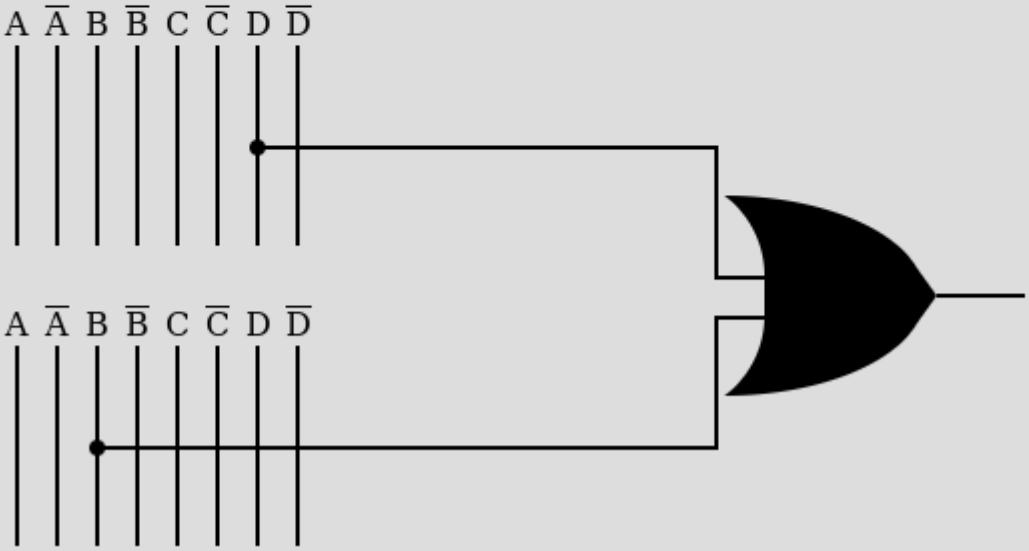
K-map for c: -

AB\ CD	00	01	11	10
00	**0**	**1**	**1**	**0**
01	**1**	**1**	**1**	**1**
11	**X**	**X**	**X**	**X**
10	**0**	**1**	**X**	**X**

Groups

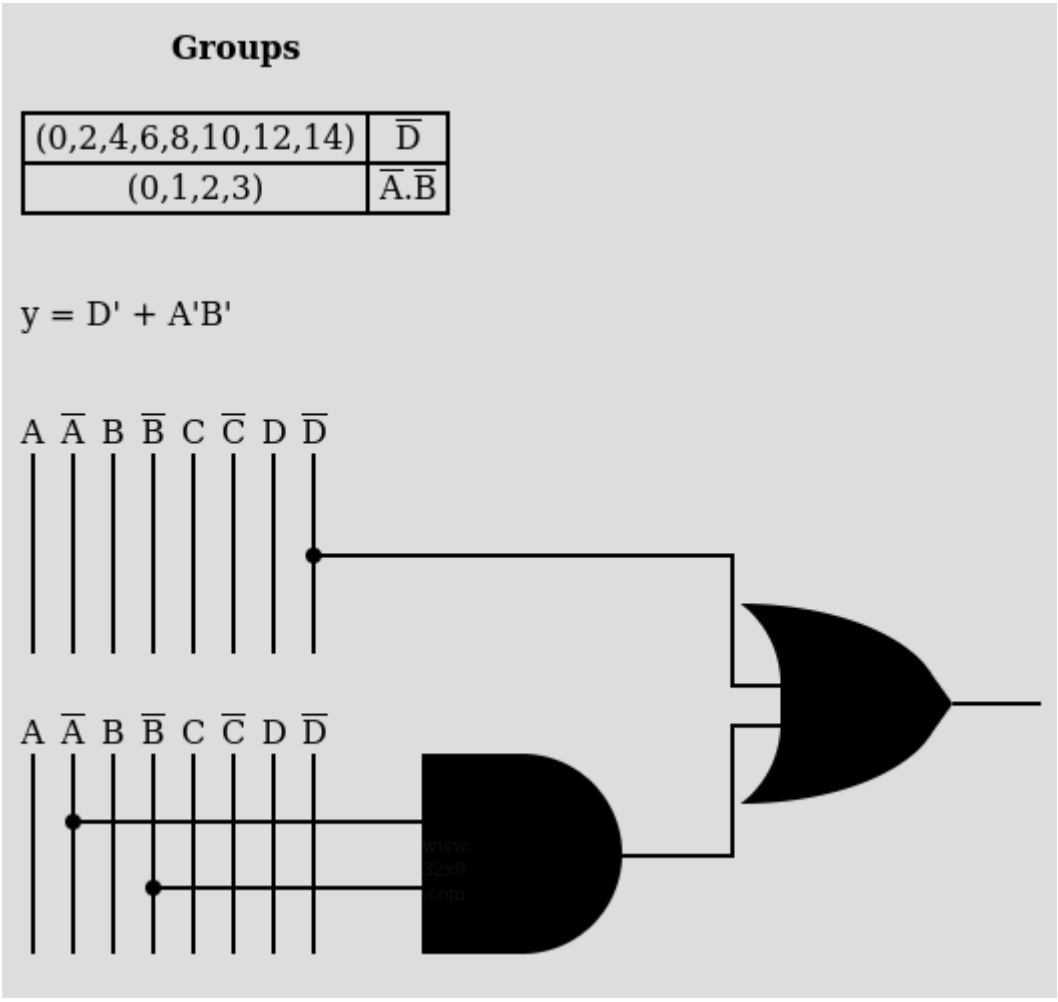
(1,3,5,7,9,11,13,15)	D
(4,5,6,7,12,13,14,15)	B

y = D + B



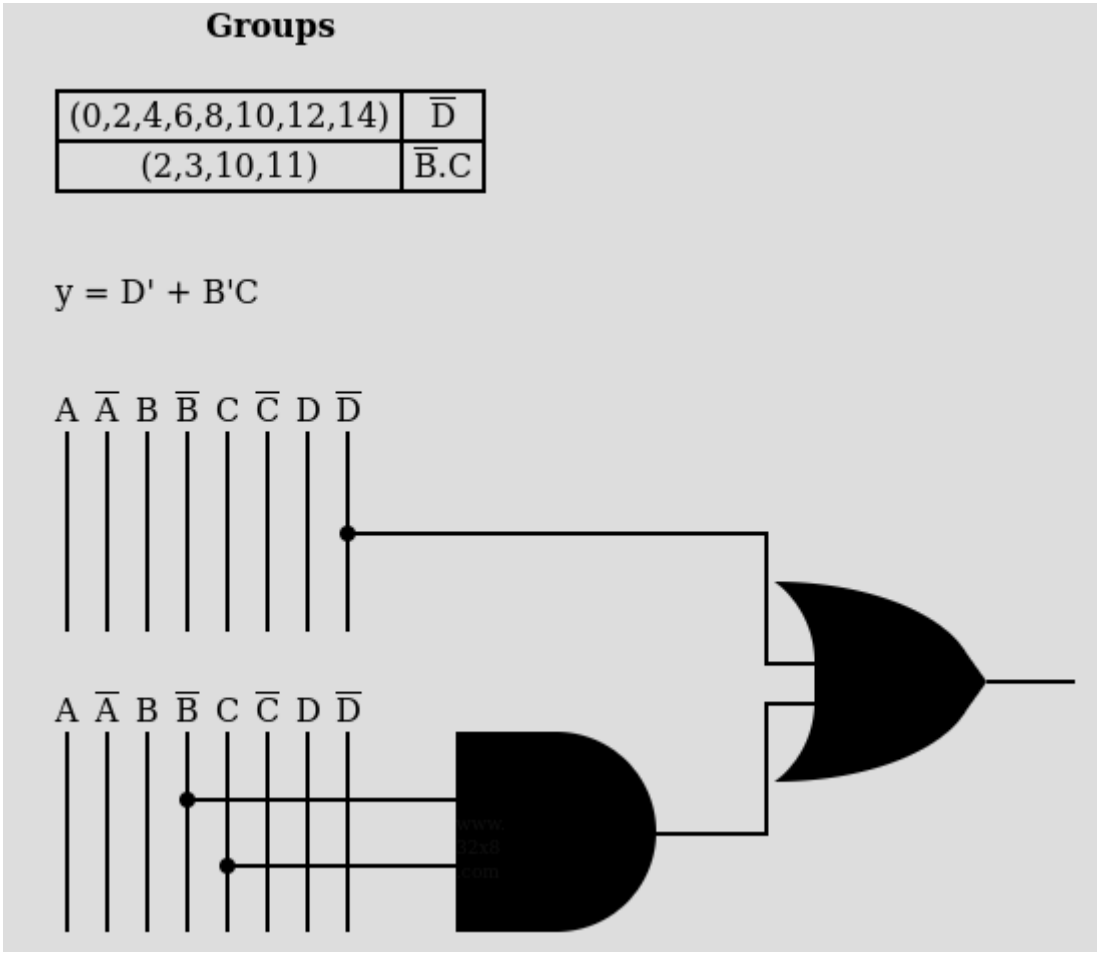
K-map for d: -

AB\ CD	00	01	11	10
00	**1**	**1**	**1**	**1**
01	**1**	**0**	**0**	**1**
11	**X**	**X**	**X**	**X**
10	**1**	**0**	**X**	**x**



K-map for e: -

AB\ CD	00	01	11	10
00	**1**	**0**	**1**	**1**
01	**1**	**0**	**0**	**1**
11	**X**	**X**	**X**	**X**
10	**1**	**0**	**X**	**X**



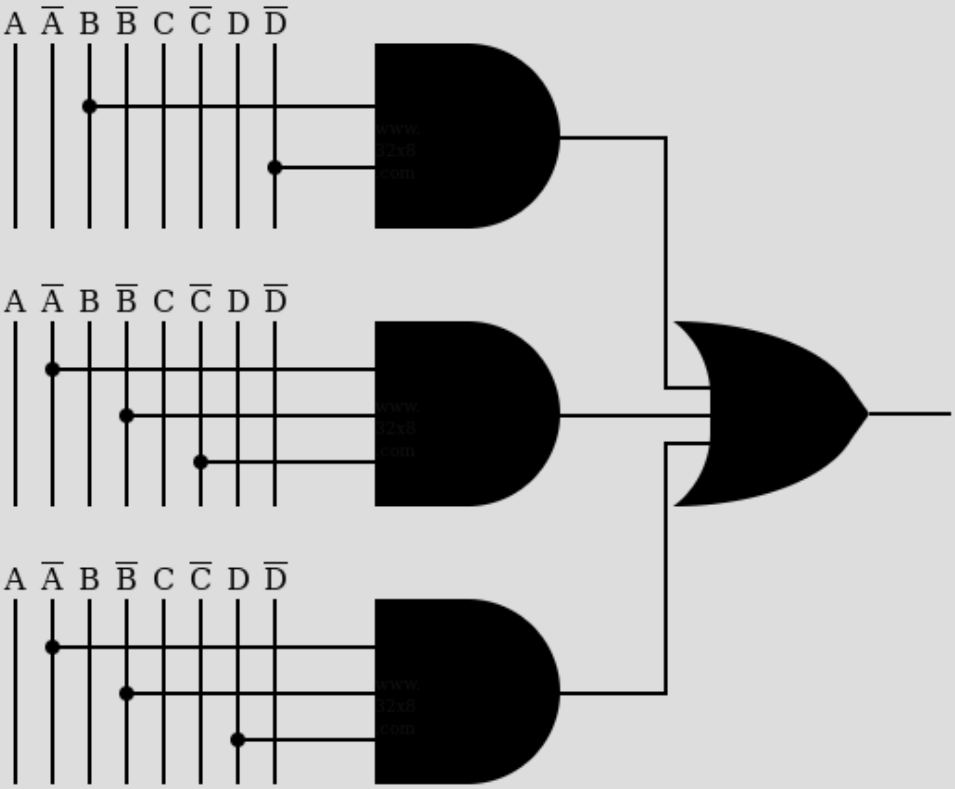
K-map for f: -

AB\ CD	00	01	11	10
00	**1**	**1**	**0**	**1**
01	**1**	**0**	**0**	**1**
11	**X**	**X**	**X**	**X**
10	**0**	**0**	**X**	**X**

Groups

(4,6,12,14)	$B.\overline{D}$
(0,1)	$\overline{A}.\overline{B}.\overline{C}$
(1,3)	$\overline{A}.\overline{B}.D$

y = BD' + A'B'C' + A'B'D



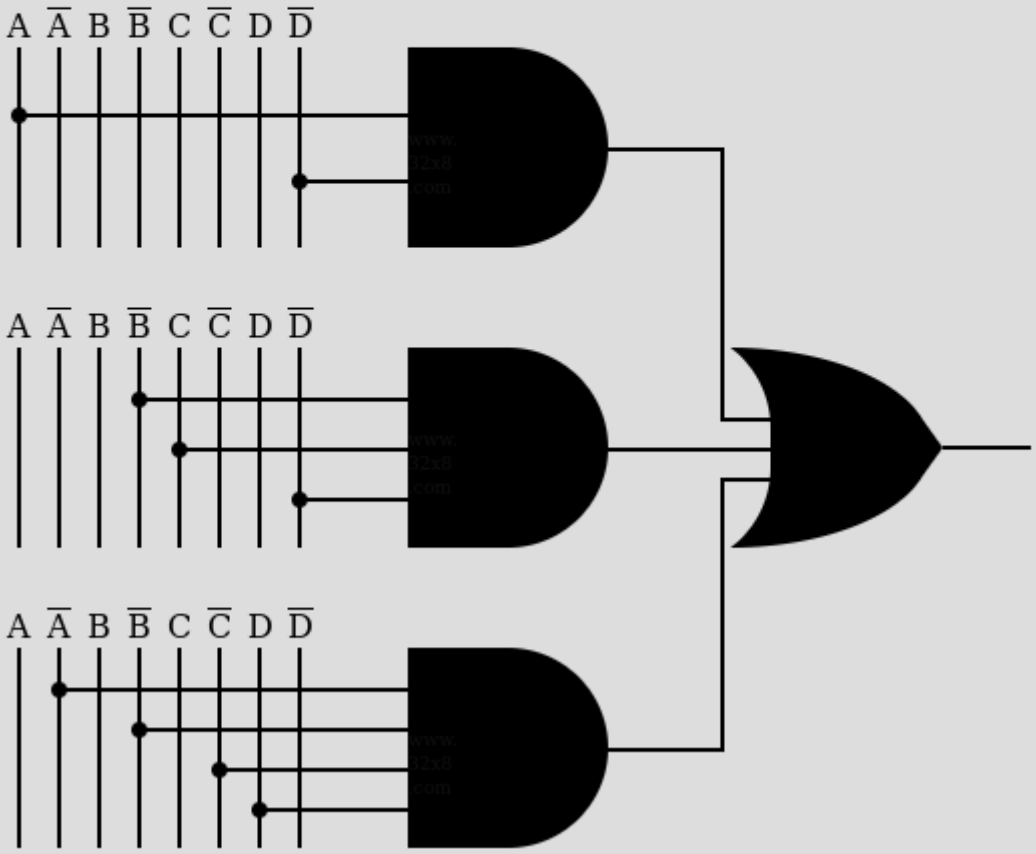
K-map for g: -

AB\ CD	00	01	11	10
00	**0**	**1**	**0**	**1**
01	**0**	**0**	**0**	**0**
11	**X**	**X**	**X**	**X**
10	**1**	**0**	**X**	**X**

Groups

(8,10,12,14)	$A.\overline{D}$
(2,10)	$\overline{B}.C.\overline{D}$
(1)	$\overline{A}.\overline{B}.\overline{C}.D$

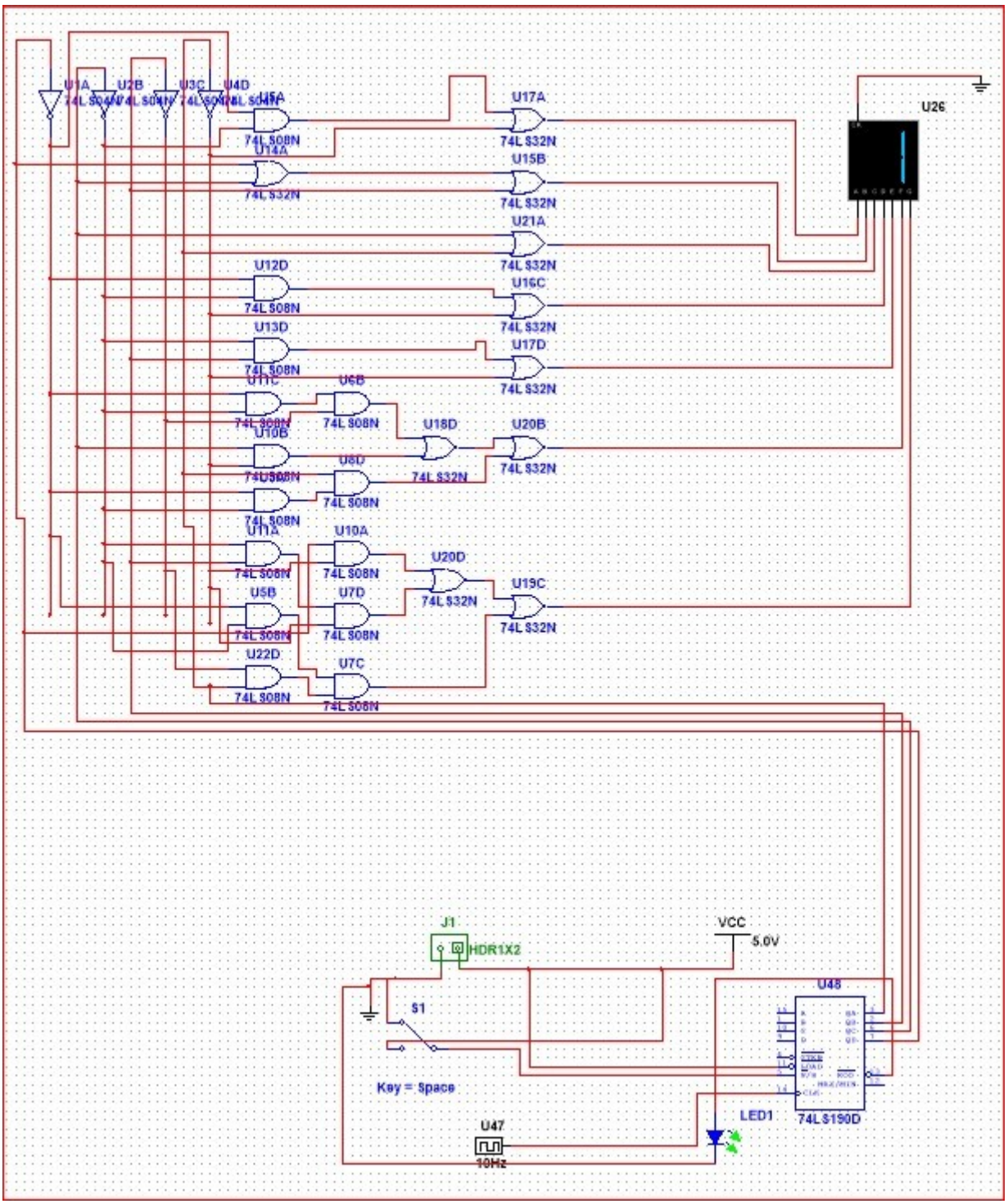
y = AD' + B'CD' + A'B'C'D



All these outputs are connected to the seven-segment display.

Then we take power supply Vcc = 5V and Counter.

OUTPUT: - CS20010121



Result:- Using basic AND, NOT, OR gates we design our Roll No. and the output is obtained.